

Chapter 5: Environmental Consequences

Chapter 5. Environmental Consequences

5.1. Introduction

In order to assess the potential environmental consequences of the five alternatives for the final rule, these alternatives will be considered within the context of the following elements:

1. The nature of the Antarctic environment including the natural and physical environment of Antarctica and its dependent and associated ecosystems as described in Chapter 2, Affected Environment - the Physical and Biological Environment.
2. The nature of the nongovernmental activities being undertaken by U.S.-based operators in Antarctica, including those of ship-based tour operators, as discussed in Chapter 3, Affected Environment - Human Activities in Antarctica.
3. The potential for environmental impacts on the Antarctic environment and its dependent and associated ecosystems by the activities undertaken by U.S. nongovernmental operators, including ship-based tour operators; and
4. The domestic statutes and regulations, relative to the Antarctic Treaty System, that already govern the activities of U.S.-based nongovernmental operators in Antarctica.

In order to provide the basis for the assessment of the potential environmental consequences for each of the proposed alternatives for the final rule, the following sections summarize: the salient points of the affected environment with a focus on ship-based tourism, the principle U.S.-based nongovernmental activity; the potential environmental impacts, including potential cumulative impacts, associated with nongovernmental activities conducted by U.S.-based operators; and a summary overview of the systems currently governing human activities, including nongovernmental activities, in Antarctica.

5.2. Summary of the Affected Environment Relevant to U.S.-Based Nongovernmental Activities in Antarctica

Antarctica is the coldest, driest, windiest, highest, and most isolated continent on Earth, unique in its physical and biological characteristics. It is this uniqueness, the remoteness and the natural beauty of the physical and biological setting, that draws tourists to visit Antarctica. The Antarctic Peninsula, the northern-most extension of the continent, and the surrounding islands support the continent's greatest diversity of native flora and fauna. It is this same area that is visited most by ship-based tour operators because of its proximity to South America, its milder summer climate relative to other areas of the Antarctic continent, the diversity of wildlife, the area's relative freedom from pack ice, and its concentration of research stations.

Ship-based tourism occurs primarily during the austral summer from about mid-November through mid-February; over 10,000 U.S. and non-U.S. tourists now visit Antarctica each year. This is the same period that flora and fauna flourish, and includes the breeding season for penguins and flying sea birds nesting in the Peninsula area. The austral summer is also the height of activity for the national science programs with the total number of scientists and support personnel over the entire continent increasing about 4-fold to a peak of about 4,000. Most stations are on the coast and in the Peninsula area, and many nations operate their stations and additional camps for field work that is feasible only during the summer.

Currently, tourism is the primary nongovernmental activity in Antarctica with more than 98% of the tourists visiting by cruise ship.¹ Although ship-based tour expeditions visit both the Peninsula and Ross Sea areas, the Peninsula area is by far the most heavily visited area with about 95% of the tour expeditions, more than 95% of the passengers, and nearly 98% of the landings.

As of the 1999-2000 season, nine U.S.-based tour operators seasonally offer ship-based tours to Antarctica; these include eight IAATO-member small vessel operators and one non-IAATO member large vessel operator.^{2 3} The eight U.S. IAATO-member small vessel operators represent over 40% of the for-profit IAATO-member companies that organize and/or operate travel programs to Antarctica. These eight operators carry nearly 55% of the passengers. IAATO membership has increased over 400% in nearly 10 years with about 40% of the increase in the number of U.S.-based operators.

Information on total ship-borne tourist numbers and landings for the ten austral seasons during the period 1989-1999, shows the following:⁴

¹ Less than 2% of the tourism is land-based.

² Orient Lines is the only U.S.-based non-IAATO member large vessel operator with scheduled seasonal tours to Antarctica. The *Marco Polo* carries an average of about 500 passengers per voyage; current IAATO By-laws require that IAATO-member vessels carry no more than 400 passengers per voyage.

³ During the 1999-2000 season, the *Rotterdam*, operated by U.S.-based HALW, was the largest tour vessel operating in Antarctica. The ship carried nearly 1,000 passengers during its world cruise which included 72-hours in the Peninsula area; during this time, none of the passengers went ashore. HALW submitted an IEE for a similar world cruise, including 72 hours cruising in the Peninsula area, by the *Ryndam* during the 2001-02 season.

⁴ Unless otherwise noted, figures are for all tour operators reporting information to the National Science Foundation; this includes U.S.- and foreign-based IAATO-member operators and the U.S.-based large vessel operator that operated in Antarctica during the 10-year period, 1989-1999.

- The overall number of visitors to Antarctica increased over 400% with over 10,000 tourists reported in 1998-1999.⁵
- Of the five countries with the largest number of its citizens traveling to Antarctica, over 40% are from the U.S.
- Landings were made by tour operators at 165 Peninsula area sites. Of these, only 16 sites averaged 100 or more landings per season.
- The ten Peninsula area sites with the most number of landings consistently accounted for more than 55% of the season's landings and just over 50% of that season's visitors. The twenty Peninsula area sites with the most number of landings consistently accounted for more than 75% of that season's landings and nearly 80% of that season's visitors.
- Three of the top eight ranked Peninsula area sites for both the number of landings and annual visitors are included in the itinerary of the U.S.-based large vessel operator seasonally offering Antarctic tours (Orient Lines IEE 1998 and Orient Lines IEE 2000).
- Not all Peninsula area sites that have had previous landings are visited each year; just over 30% of the sites were visited by Zodiac landings only once a season. On average, the number of new landing sites in the Peninsula area has been 14 sites per year.
- Visits to research stations are popular with Antarctic tourists; visits to U.S. stations are scheduled through the National Science Foundation. Visits to other stations are arranged through the appropriate national programs.
- Visits to historic monuments and certain specially managed areas are also popular with Antarctic tourists; visits to these monuments and areas are scheduled through the national programs, as appropriate, and are conducted in accordance with specific management provisions, where designated.

Ship-based Antarctic tourism is expected to increase by about 11% over the next five years with most expeditions to the Peninsula area. These expeditions are expected to continue to be conducted primarily by IAATO-member operators aboard small vessels; 40% to 50% of the IAATO-member operators will continue to be U.S.-based and carry over 50% of the U.S. citizen tourists. Since IAATO members, including U.S.-based members, are projected to continue at approximately

⁵ A record 14,762 ship-borne passengers were reported during the 1999-2000 "Millennium Year." IAATO's forecast for ship-borne Antarctic tourism projects a 11% increase (14,175 to 16,000 passengers) over the next five seasons (IAATO SATCM/IP 32 2000).

the same levels as the 2000-01 season for the next five years (IAATO IEE 2000), any significant increases in the tourism numbers in the out-years would likely be due to one or more new large vessel operators entering the market and/or increases in the number of large vessel expeditions by operators already in the Antarctic tour market. Likewise, significant increases could also occur if additional new small vessel operators enter the market and offer multiple expeditions annually, or if current IAATO-member operators increase their annual operations. With regard to U.S.-based operators, it is likely that U.S.-based small vessel operators will continue to enter the market as IAATO members with expeditions to the Peninsula area. It is also possible that at least one U.S.-based large vessel operator could enter the Antarctic tourism market.⁶

5.3. Potential Environmental Impacts and Mitigation Measures

5.3.1. Potential Direct and Indirect Environmental Impacts of Expeditions by U.S.-Based Operators

Concern with the potential environmental impacts associated with tourism⁷ center on the protection of the Antarctic environment and dependent and associated ecosystems and the intrinsic value of Antarctica, including its wilderness and aesthetic values and its value as an area for the conduct of scientific research. At the same time, tourism, along with scientific research programs and all other governmental and nongovernmental activities, is recognized as a legitimate activity in Antarctica.

Naveen has evaluated Peninsula area sites visited by tour ships in terms of their species diversity, attractiveness to visitors, and sensitivities, and has identified nine potential factors suggesting a site's sensitivity to environmental damage (Naveen 1997). These are listed in Table 5.1.

⁶ IAATO identified two new operators for the 2000-01 season. Both, however, were previously Associate Members and booked tourists on other IAATO-member expeditions and vessels; both plan to continue to charter on other IAATO-member's vessels. U.S.-based large-vessel operator Crystal Cruises discussed with EPA its initial plan to include cruising in Antarctic waters as part of its 2001-02 world cruise. Yachts now carry about 1% to 2% of the ship-borne tourists to Antarctica, and the number of yachts carrying passengers to Antarctica is expected to increase in the out-years, particularly in support of land-based adventure tours in the Peninsula area. Currently, there are no U.S.-based yacht operators but it is possible that one or more U.S.-based operators could enter the Antarctic tourism market. Out-year projections do not include entry of U.S.-based operators into the continental or overflight sectors of the Antarctic tourism market. The U.S.-based research foundation, Oceanites, is expected to continue its tourism-related research in the Peninsula area. EPA also anticipates there will likely be an occasional U.S.-based one-time expedition to Antarctica (e.g., such as the White Mountain Films and Bancroft Arnesen trekking expeditions).

⁷ Ship-based tourism in the Peninsula area is the primary U.S.-based nongovernmental activity in Antarctica; thus, the discussion of environmental impacts will focus on those associated with ship-based tourism. Other U.S.-based nongovernmental expeditions have also been ship-based (e.g., research by Oceanites, one-time filming by White Mountain Films). The IEE for the one-time trans-continent trek by two women addresses the potential environmental impacts for the expedition which are similar in nature to those for the other U.S.-based operators (e.g., fuel and waste management).

Table 5.1. Potential Factors Suggesting a Site's Sensitivity to Environmental Damage	
•	Unusually high science values which have the potential of being easily disturbed (e.g., the possibility of disturbing a major project being conducted on site, or disturbing a site like the Dry Valleys, which has clearly "recognized" science value).
•	Presence of an unusually high species diversity.
•	Presence of geological or physical features that may be easily disturbed (e.g., rare penguin fossils on Seymour Island; potentially serious erosion).
•	Close proximity to a boundary of a Site of Special Scientific Interest (SSSI) or Specially Protected Area (SPA) which boundary is poorly defined or easily encroached.
•	Presence of environmental elements that focus visitor attention and may be disrupted (e.g., a species with very limited distribution or rare occurrence in the area such as macaroni penguins at Hannah Point).
•	Close proximity to any southern giant petrel nests, this being one species of flying bird that is very easily disturbed.
•	Situations where nests of regularly encountered flying birds, such as blue-eyed shags, kelp gulls or Antarctic turns, may be easily disturbed.
•	Restricted visitor space at a particular site where there are only very narrow (or perhaps non-existent) pathways between visitors and penguins.
•	Presence of large beds or patches of moss or foliose-fruticose lichens which may be easily accessed and trampled.

From: Naveen, 1997

Nongovernmental expeditions, by their nature, involve the transport of persons to Antarctica which will result in physical impacts. These may include but are not limited to: air emissions, discharges to the ocean, noise from engines, landings for sight-seeing, and activities by visitors near wildlife (40 CFR Part 8, Preamble II.D.3(b)). Under EPA's Interim Final Rule, U.S.-based nongovernmental operators must prepare an environmental impact assessment that identifies and assesses the potential impacts of their proposed activities on the Antarctic environment (40 CFR §8.1). In making the determination what level of environmental documentation is appropriate, U.S.-based operators consider, as applicable, whether and to what degree the proposed activity (40 CFR §8.4(b)):

- (1) Has the potential to adversely affect the Antarctic environment;
- (2) May adversely affect climate or weather patterns;
- (3) May adversely affect air or water quality;
- (4) May affect atmospheric, terrestrial (including aquatic), glacial, or marine environments;
- (5) May detrimentally affect the distribution, abundance, or productivity of species, or populations of species of fauna and flora;
- (6) May further jeopardize endangered or threatened species or populations of such species;

- (7) May degrade, or pose substantial risk to, areas of biological, scientific, historic, aesthetic, or wilderness significance;
- (8) Has highly uncertain environmental effects, or involves unique or unknown environmental risks; or
- (9) Together with other activities, the effects of any one of which is individually insignificant, may have at least minor or transitory cumulative environmental effects.

As a result of these considerations, U.S.-based operators have submitted IEEs as a means of evaluating the reasonably foreseeable potential effects of their proposed activities on the Antarctic environment. To date, their IEEs have contained sufficient detail to assess whether a proposed activity may have more than a minor or transitory impact on the Antarctic environment and, in addition to the nine factors above, have included the following information as applicable:⁸

- (1) A description of the proposed activity, including its purpose, location, duration, and intensity; and
- (2) Consideration of alternatives to the proposed activity and any impacts that the proposed activity may have on the Antarctic environment including consideration of cumulative impacts in light of existing and known proposed activities.

As described in the U.S.-based operators' IEEs, the potentially adverse direct and indirect environmental impacts of ship-based tourism activities in Antarctica are generally associated with the ship's operations, Zodiac operations, and the activities of passengers and expedition staff during landings. Appendix 24 summarizes the potentially adverse direct and indirect environmental impacts identified in the IEEs prepared by the U.S.-based operators and the operators' proposed control measures to be employed to ensure that any impacts are no more than minor or transitory.⁹ Table 5.2 is a summary listing of the potential direct and indirect environmental impacts associated with ship-based tourism by U.S.-based operators.^{10 11}

⁸ 40 CFR §8.7(b) which is consistent with Article 8 and Annex I of the Protocol (see Appendix 23).

⁹ Impacts may also include those resulting from actions which may have beneficial effects. Tour vessels provide transport for scientific personnel and supplies and, on occasion, carry scientists engaged in research. Experienced tour operators provide detailed information on landing sites, access routes, features and other information necessary to create site management plans. IAATO also maintains that Antarctic tourism builds a constituency of informed ambassadors for the conservation of Antarctica and support of national Antarctic science programs (IAATO 1997; IAATO XXI ATCM/Item 12, May 1997; and IAATO SATCM/IP 32 2000).

¹⁰ The potential direct and indirect environmental impacts of U.S.-based nongovernmental researchers on fauna and flora include 'takings' and/or 'harmful interference,' activities addressed under a permit issued by the National Science Foundation.

¹¹ The IEEs do not include assessment of potential impacts associated with cases of emergency. Section 8.10 of the Interim Final Rule provides the notice and reporting requirements that apply to activities taken in cases of emergency relating to the safety of human life or of ships, aircraft, equipment and facilities of high value, or the

Table 5.2 Potential Direct and Indirect Environmental Impacts Associated with Ship-Based Tourism Conducted by U.S.-Based Operators	
<u>Ship and Zodiac Operations:</u> Potential impacts to water, air, marine fauna/flora and/or science program research from:	
•	Fuel and oil-related activities and/or incidents including burning fuel and/or stack emissions and fuel and/or oil spill
•	Waste-related activities/incidents including: discharges of sewage water to Antarctic Treaty waters, stack emissions from incineration of dry garbage, and accidental waste/litter releases. Wastes include: sewage water, food waste, medical waste, batteries, and any other garbage
•	Ballast discharge
•	Ocean transit, maneuvering and ice breaking
•	Vessel noise and lights
•	Anchoring
•	Inadvertently entering protected areas
•	Zodiac operations including: fueling, waste disposal, marine incidents, and point source pollution
<u>Landing Operations Including Helicopter Overflights/Landings:</u> ¹² Potential impacts of human activity on fauna, flora and/or science program research from:	
•	Trampling nesting sites and fragile plant communities; noise; predation and scavenging of eggs and chicks if adults are forced to leave their nests or young unattended
•	Introduction of alien species or microbes; spread of disease from other colonies
•	Harm to protected areas
•	Harm to new sites
•	Harm to historic buildings and artifacts
•	Disruption of science program research and operations
•	Helicopter flight activity including fuel spill during refueling, dust creation and surface destruction from rotor down draught, increased predation following disturbance by aircraft/aircraft noise

protection of the environment, which require an activity to be undertaken without completion of the EIA procedures set out in the regulations, consistent with Article 8 and Annex I of the Protocol (see Appendix 23).

¹² Two U.S.-based operators use helicopters. Orient Lines and Quark Expeditions use helicopters for ice reconnaissance; Quark Expeditions also uses its helicopter to land passengers.

5.3.2. Potential Cumulative Environmental Impacts of Expeditions by U.S.-Based Operators

As noted above, in making the determination what level of environmental documentation is appropriate, U.S.-based operators must consider whether and to what degree the proposed activity may have at least minor or transitory cumulative environmental effects.¹³ All U.S.-based nongovernmental operators, including the ship-based tour operators, thus far have concluded that the potential impacts, including cumulative impacts, are no more than minor or transitory for their planned expeditions.¹⁴ Their conclusions to date, including that for cumulative impacts, have been supported by the information currently available.

However, the issue of cumulative impacts, particularly in the Peninsula area, remains a concern in light of such factors as the increasing number of tour operators, expeditions, and passengers landed; the number of sites visited; and the frequency at which certain sites are visited. To better address the issue of possible cumulative environmental impacts associated with ship-based Antarctic tourism, the EPA, the National Science Foundation and IAATO sponsored a workshop for scientists and government, industry and environmental interest group representatives to consider the research needed to assess whether any changes in the fauna and flora are related to natural variation or to tourism activities.^{15 16} Appendix 25 provides a preliminary summary of this workshop.

¹³ Under 40 CFR §8.4(b), “In making the determination what level of environmental documentation is appropriate, the operator should consider, as applicable, whether and to what degree the proposed activity: ... [t]ogether with other activities, the effects of any one of which is individually insignificant, may have at least minor or transitory cumulative environmental effects.”

¹⁴ Under 40 CFR §8.7(b), an IEE must contain sufficient detail to assess whether a proposed activity may have more than a minor or transitory impact on the Antarctic environment and must include “... consideration of cumulative impacts in light of existing and known proposed activities.”

¹⁵ “Assessment of the Possible Cumulative Environmental Impacts of Commercial Ship-Based Tourism in the Antarctic Peninsula Area: Proceedings of a Workshop Held in La Jolla, California, 7-9 June 2000.” Draft Report. Workshop sponsors: National Science Foundation, EPA, and IAATO. Undated.

¹⁶ Amongst other things, the workshop discussions exemplified the difficulties of identifying cumulative impacts related specifically to tourism. For example, research findings suggest that most of the variability associated with the decline in Adelie penguins can be explained by the effects of climate change, and tourism is not having a measurable impact on Adelie penguin populations in the Palmer Station area. Evidence of impact on the penguins from human activity was noted with regard to the direct contact and intrusive research methods used in some scientific studies, contact activities not permitted by tourists. From: “Lessons Learned from Other Research.” Dr. William R. Fraser, Polar Oceans Research Group, June 30, 2000. Draft text prepared for “Assessment of the Possible Cumulative Environmental Impacts of Commercial Ship-Based Tourism in the Antarctic Peninsula Area: Proceedings of a Workshop Held in La Jolla, California, 7-9 June 2000.” Draft Report. Workshop sponsors: National Science Foundation, EPA, and IAATO. Undated.

5.3.3. Mitigation Measures Employed by U.S.-Based Operators

The IEEs of U.S.-based operators have to date included mitigation measures to be employed in order to ensure that any impacts associated with their planned activities are no more than minor or transitory. These planned mitigation measures are an integral component of the IEE documentation in that the planned mitigation helps support of conclusions of the operators that the potential environmental impacts for the planned expeditions will be no more than minor or transitory (40 CFR Part 8 Preamble II.D.3.[b]).

To eliminate or reduce potential environmental impacts during the course of their expeditions, U.S.-based operators use ship crews and expedition staff with Antarctic experience and provide the crew and staff with training on the provisions of the Antarctic Treaty, the Protocol and other relevant agreements, conventions, laws and regulations. In general and in summary, the operators employ standard operating procedures including adherence to:¹⁷

- The Antarctic Treaty of 1959;
- Convention for the Conservation of Antarctic Seals (CCAS);
- Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR);
- Protocol on Environmental Protection to the Antarctic Treaty;
- International Convention for the Prevention of Pollution from Ships (MARPOL 1973/78);
- International Convention for the Safety of Life at Sea (SOLAS);
- Recommendations and other measures adopted under the Antarctic Treaty System including Recommendation XVIII-1, *Guidance for Those Organizing and Conducting Tourism and Non-Governmental Activities in the Antarctic* and *Guidance for Visitors to the Antarctic*;
- International Convention on Oil Pollution, Preparedness, Response and Cooperation;
- The Antarctic Conservation Act of 1978 (Public Law 95-541);
- 33 CFR Part 151, U.S. Coast Guard regulations implementing the Protocol;
- Antarctic Science, Tourism, and Conservation Act of 1996 (Public Law 104-227);
- 40 CFR Part 8, EPA's interim final rule, Environmental Impact Assessment of Nongovernmental Activities in Antarctica; and
- IAATO-member operators adherence to the IAATO Bylaws.¹⁸

¹⁷ Although the U.S.-based tour operators include most or all of the listed items, it is the implementing domestic legislation that gives effect to the Conventions, the Treaty and the Protocol. Further, it is the obligation of the flag states of the vessels chartered by the operators to ensure compliance with the obligations related to vessel operations (e.g., MARPOL 73/78 and SOLAS).

¹⁸ U.S.-based operators who are not members of IAATO (e.g., Orient Lines) also claim to adhere to the principles of the IAATO Bylaws, namely, landing no more than 100 passengers at a site at one time.

To eliminate or minimize potential environmental impacts from ship and Zodiac operations, the ship's command and expedition leaders closely monitor weather conditions, and maintain regular communications and coordination with other tour operators who are conducting ship, and airborne, tourism. For safety purposes, the vessels used by U.S. ship-based operators maintain lifesaving equipment including lifeboats and the expedition Zodiacs, and the operators have emergency medical contingency plans. Additional measures employed for Zodiac operations include: controlled fueling of the craft on the parent ship, attention to weather conditions regarding a decision to employ their use at a given location, and use of personnel experienced in their operations and trained on the provisions of the Protocol and related documents as listed above.

U.S.-based operators also employ standard operating procedures that include various procedures to eliminate or reduce potential environmental impacts during passenger landings. These procedures rely heavily on passenger education throughout the cruise on the provisions of the Protocol (and related documents as listed above) and what can and cannot be done by tourists while in Antarctica, the general process for landings, and the specific procedures for each landing site. In addition, passengers are supervised on a 1:20 staff to passenger ratio, experienced staff are used to manage passenger landings, and all staff are trained on the provisions of the Protocol and other appropriate requirements. For flagrant violation of the landing rules, the ship's captain may revoke a passenger's future landing privilege.

Even with advance planning and standard operating procedures, including operative mitigation measures, U.S.-based operators may occasionally be involved in incidents. However, the impacts of the few incidents that have been reported by U.S.-based operators have been no more than minor or transitory.^{19 20}

¹⁹ IAATO reported that during the 1999-2000 season, the *Clipper Adventurer*, operated by U.S.-based Clipper Cruise Line, became ice bound and was assisted by the Argentine Navy; other IAATO-member vessels would have assisted but locations were such that an Argentine national program ship arrived to assist. In another incident, the *A. Vavilov*, operated by U.S.-based Quark Expeditions, struck a whale while cruising in Antarctic waters at about 64° latitude; the whale surfaced and appeared to be injured but was not killed. According to IAATO, this is possibly the first time this has happened with a tourist vessel (Biggs Feb. 2, 2000).

Orient Lines reported that: "On one occasion in the season 1999-2000, the number of passengers on shore at Port Lockroy exceeded 100 by more than a minor amount. This was caused by a prolonged hold-up in zodiac operation at the landing site, caused by floating ice, coinciding with the staff on board Marco Polo mistakenly sending a batch of zodiacs laden with new passengers. Those sitting on the zodiacs were getting cold, while those waiting on land to leave were impatient to return to the ship. In the circumstances, more passengers were landed than should have been to clear the bottleneck. But the excess passengers on shore were all gathered on rocks near the landing point, so were not causing more than a minor or transitory impact. Lessons were learned from this incident, which should not recur (Orient Lines IEE 2000 and Orient Lines Sep. 14, 2000)."

²⁰ The two most significant incidents in Antarctica did not involve U.S.-based operators. In 1989, the *Bahia Paraiso*, an Argentine government program supply ship that was also carrying passengers, ran aground and eventually sank, after striking submerged coastal rocks; all passengers and crew were safely rescued. The environmental consequences, including physical damage and petroleum contamination, are being monitored by

5.4. Systems Governing the Activities of U.S.-Based Nongovernmental Operators in Antarctica

In addition to the physical and biological environment, and the potential for environmental impacts, the environmental consequences of the five alternatives for the final rule need to be considered within the context of the existing international and domestic legal framework applicable to Antarctica and the controls on nongovernmental activities imposed by this framework, including those of U.S.-based operators. These international and domestic systems are summarized in the following two subsections.

5.4.1. The Antarctic Treaty and the Treaty System

The Antarctic Treaty. The Antarctic Treaty (Treaty), which concluded in 1959 and entered into force in 1961, applies to the area south of 60 degrees south latitude including all ice shelves. Amongst other things, the Treaty: guarantees freedom of scientific research in Antarctica and provides the basis for peaceful international cooperation; establishes Antarctica as a zone of peace, bans all military activities including weapons testing, and prohibits nuclear explosions and radioactive waste disposal; and provides an absolute right of on-site inspection of all stations and installations in Antarctica to promote the objectives of the Treaty and ensure compliance with its provisions. The Treaty provides a mechanism for dealing with new activities and new circumstances. This mechanism provides for meetings of the contracting Parties for the purpose of exchanging information, consulting together on matters of common interest pertaining to Antarctica and recommending to their governments measures in furtherance of the principles and objectives of the Treaty (Dept. of State 1999).

The Antarctic Treaty Consultative Meetings (ATCMs), as they are now called, are open to participation by representatives of all contracting Parties.²¹ The 1999 ATCM marked the twenty-third such meeting since the Treaty entered into force. As a result of these ATCMs, approximately two hundred agreed recommendations have been adopted by the Antarctic Treaty Consultative Parties (ATCPs) (Dept. of State 1999).

various national programs. In 1979, an Air New Zealand sightseeing plane carrying 257 passengers and crew crashed into Mt. Erebus killing all onboard; science program personnel in the Ross Sea area, including those at McMurdo Station, undertook search and rescue efforts. As a result of this crash, more stringent over-flight requirements were instituted by New Zealand.

²¹ There are now twenty-seven Antarctic Treaty Consultative Parties (ATCPs) with rights to block consensus at Consultative Meetings: Argentina, Australia, Belgium, Brazil, Bulgaria, Chile, China, Ecuador, Finland, France, Germany, India, Italy, Japan, Republic of Korea, the Netherlands, New Zealand, Norway, Peru, Poland, the Russian Federation, South Africa, Spain, Sweden, the United Kingdom, the United States and Uruguay. There are eighteen such non-Consultative Parties (NCPs): Austria, Canada, Colombia, Cuba, the Czech Republic, Denmark, Estonia, Greece, Guatemala, Hungary, the Democratic People's Republic of Korea, Papua-New Guinea, Romania, the Slovak Republic, Switzerland, Turkey, Ukraine and Venezuela (Dept. of State 1999).

The Antarctic Treaty System (ATS). The Antarctic Treaty and the related measures and independent agreements adopted by the Treaty Parties are known collectively as the Antarctic Treaty System.

‘The agreed recommendations adopted at the ATCMs incorporate a wide range of measures to give effect and elaborate the principles and purposes of the Antarctic Treaty. A significant portion of these recommendations deal with protection of the Antarctic environment.

Equally important from the environmental perspective, the ATCMs have provided the mechanism for the ATCPs to delineate and respond to the challenge of possible resource activities in Antarctica. Recommendations adopted at ATCMs have included initiatives that have led to the conclusion of separate agreements which in whole or in part seek to address resource issues. Three of these are in force (Dept. of State 1999).

The three agreements that address resource issues are the Convention for the Conservation of Antarctic Seals (CCAS), the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), and the Protocol on Environmental Protection to the Antarctic Treaty. In addition to these three, one other convention has relevance to nongovernmental activities in Antarctica, the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78). These four are summarized in Appendix 26.

5.4.2. U.S. Domestic Regulatory System Applicable to Nongovernmental Activities in Antarctica

The United States accomplishes compliance with its obligations under the Antarctic Treaty System through domestic legislation and regulations which govern the actions of persons subject to the jurisdiction of the United States.²² Pertinent statutes with regard to nongovernmental activities in Antarctica include the following:

- The Marine Mammal Protection Act, 16 U.S.C. §1371 *et seq.*, governs nongovernmental activities undertaken in the Antarctic Treaty Area that are covered by CCAS and CCAMLR.²³

²² *Person* has the meaning given that term in section 1 of title 1, United States Code, and includes any person subject to the jurisdiction of the United States.

²³ As provided in the Protocol, the Interim Final Rule does not apply to activities undertaken in the Antarctic Treaty area that are governed by CCAMLR or CCAS. Under the Marine Mammal Protection Act, the National Marine Fisheries Service’s regulations govern commercial fishing in Antarctic waters and apply to all marine biota, including bird and mammal populations. However, persons traveling to Antarctica are subject to the requirements of the Marine Mammal Protection Act including the prohibition on the taking of marine mammals (see Appendix 27 and Appendix 19, 40 CFR §8.2(c)).

- The Antarctic Conservation Act of 1978 (ACA), Public Law 95-541, as amended, 16 U.S.C. §2401 *et seq.*, conserves and protects the native mammals, birds, and plants of Antarctica (45 CFR §670). The ACA, as amended, restricts entry into and activities conducted in Antarctic Specially Protected Areas. The ACA, as amended, also restricts introduction of certain prohibited products into Antarctica, prohibits disposal of certain types of waste, and requires permits for use and disposal of designated pollutants in Antarctica (45 CFR §671).
- The Antarctic Science, Tourism, and Conservation Act of 1996 (the Act), Public Law 104-227, amended the ACA and includes the following provisions which are pertinent to nongovernmental activities in Antarctica:
 - Environmental Impact Assessment of Nongovernmental Activities (16 U.S.C. §2401 *et seq.*, as amended, 16 U.S.C. §2403a);
 - Environmental Protection Information (F.R. 63, No. 107); and
 - Emergency Response Plans (F.R. 63, No. 107).
- The Act to Prevent Pollution from Ships (APPS), Public Law 96-478, 33 U.S.C. §1901 *et seq.*, implements MARPOL 73/78. It designates Antarctica as a special area with significant restrictions on discharges of garbage, oil, and noxious liquid substances from ships.

Appendix 27 summarizes the U.S. domestic statutes and regulations that implement the Conventions and the Protocol of the Antarctic Treaty System that are applicable to nongovernmental activities in Antarctica.

5.5. Potential Consequences of the Proposed Alternatives for the Final Rule

The purpose of EPA's final rule is to implement the requirements of Article 8 and Annex I to the Protocol as required by the Act (16 U.S.C. §2403a).²⁴ EPA has identified five alternatives for the final rule. These alternatives, described in detail in Chapter 4, are as follows:

Alternative 1: No Action Alternative - Promulgate the Interim Final Rule as the final rule

Alternative 2: Preferred Alternative - Interim Final Rule with certain procedural and administrative modifications

²⁴ The Act also requires EPA to provide for coordination of the review of information regarding environmental impact assessment received by the United States from other Parties under the Protocol. Section 8.12 of the Interim Final Rule provides for this. As discussed in Section 4.3.1 of this EIS, this provision is included in all five of the alternatives for the final rule.

Alternative 3: Interim Final Rule with modifications beyond those considered to be procedural or administrative

Alternative 4: “Substantive” rule

Alternative 5: “Discretionary” rule

All five alternatives are variations of the Interim Final Rule (see Appendix 19) and set forth procedures for environmental impact assessment through a process of one or more stages of assessment.²⁵ Under this process, if an activity will have an impact that is less than minor or transitory, a preliminary environmental review would suffice; for an activity that will have no more than a minor or transitory impact, an IEE would be the appropriate level of assessment; and for an activity that is likely to have more than a minor or transitory impact, a CEE would be appropriate. The intent of each of the five alternatives is to implement the requirements of Article 8 and Annex I to the Protocol and, as required by the Act, to be “consistent with Annex I.” However, the alternatives vary in meeting this intent as discussed in Chapter 4 and the following sections of this Chapter.

Unlike some other rules promulgated by EPA, this final rule will not set out a numerical or performance-based environmental standard (e.g., a water or air quality standard or a permitted discharge or confinement standard) by which potential environmental impacts and potential activity-level modifications can be quantified and compared. Instead, the final rule sets out environmental impact assessment procedures consistent with Article 8 and Annex I to be applied by operators in the planning processes leading to decisions about any nongovernmental activities, including tourism, undertaken in the Antarctic Treaty area (Protocol Article 8).

The purpose of this Chapter is to assess the environmental consequences of the five proposed alternatives for the final rule. However, this is a regulatory action, and as such the consequences of the selected alternative may entail other consequences that are not explicitly environmental in nature but that affect the efficacy (and thus the ultimate environmental impacts) of the rule. For this reason, EPA believes that the assessment of the consequences associated with each of the alternatives must include assessment of the potential environmental consequences associated with each of the following elements:

- The ability of the alternative to ensure that the U.S. is able to comply with its obligations under the Protocol;
- Assurance that the regulations would be, as directed by the Act, “consistent with Annex I to the Protocol;”

²⁵ All five alternatives also include provision for coordination of the review of information regarding environmental impact assessments received from other Parties under the Protocol.

- The ability of the alternative to ensure consistency between the governmental²⁶ and nongovernmental EIA processes; and
- The burden imposed on the operators.²⁷

While these elements do not involve environmental consequences *per se*, they have a bearing on how effectively the final rule can be implemented and, thus, could have indirect environmental consequences.²⁸

As noted above, the five alternatives are variations of the Interim Final Rule and, thus, Alternative 1, the “No Action” alternative (e.g., promulgation of the Interim Final Rule as the final rule). For this reason, the assessment of environmental consequences for Alternative 1 is based on the assessment of the environmental and other consequences for the Interim Final Rule with projection of this assessment into the out-years. The assessment of the consequences for the other four alternatives is then based on comparisons with the consequences assessment for Alternative 1.

5.5.1. Potential Consequences of Alternative 1: No Action Alternative - Promulgate Interim Final Rule as the Final Rule

Alternative 1, the “No Action” Alternative, would be the proposed promulgation of the Interim Final Rule as the final rule. Thus, an assessment of the consequences, including both environmental and other consequences, for the Interim Final Rule and projection of these consequences into the out-years constitutes an assessment of the consequences associated with Alternative 1.

Assessment of the Environmental Consequences of the Interim Final Rule: The Interim Final Rule implements the requirements of Article 8 and Annex I to the Protocol (40 CFR §8.1(a)). These procedures ensure that nongovernmental operators identify and assess the potential impacts of their proposed activities, including tourism, on the Antarctic environment; and that operators consider

²⁶ As managed by the National Science Foundation for all U.S. government activities under the U.S. Antarctic Program.

²⁷ EPA is concerned that the final rule not place undue burden on operators, including small business operators. Should this occur, there is a potential for one or more U.S.-based operators to move their operations to another country, including a country not Party to the Treaty. A move to another country cannot be ruled out given the international nature of the tour industry; e.g., see reference in Section 3.14.3 to take-overs by world-wide groups of certain U.S.-based operators and written statements submitted to EPA during its July 14, 1998 scoping meeting (Appendix 20).

²⁸ Adverse consequences on the Antarctic environment could be created if the final rule has the effect of driving U.S.-based operators to countries not Party to the Protocol. If this were to happen, in most circumstances there would be no obligation on the part of the operator to comply with the planning processes delineated in Article 8 and Annex I of the Protocol leading to decisions about any activities undertaken in the Antarctic Treaty area.

these impacts in deciding whether or how to proceed with proposed activities. The procedures are intended to ensure that potential environmental effects of nongovernmental activities are appropriately identified and considered by the operator during the planning process and that to the extent practicable, appropriate environmental safeguards which would mitigate or prevent adverse impacts on the Antarctic environment are identified by the operator (40 CFR §8.1(2)(b) and 40 CFR §8.2(a)).

It has been EPA's view that the types of nongovernmental activities that are currently being carried out will typically be unlikely to have impacts that are more than minor or transitory assuming that activities will be carried out in accordance with the guidelines in the ATCM Recommendation XVIII-1 (Appendix 8), the relevant provisions of other U.S. statutes, and Annexes II-V to the Protocol (40 CFR Part 8 Preamble II.D.3(b)). Consequently, under the Interim Final Rule, it has been EPA's view that an IEE is the appropriate level of environmental documentation for proposed activities where multiples of the activity over time are likely and may create a cumulative impact.

During the time the Interim Final Rule has been in effect, U.S.-based operators have submitted IEEs as a means of evaluating the reasonably foreseeable potential effects of their proposed activities on the Antarctic environment. In reviewing this documentation, EPA has not had to make a finding that the documentation submitted does not meet the requirements of Article 8 and Annex I of the Protocol and the provisions of the regulations.²⁹ Thus, by notifying the operators that their IEEs meet the requirements of Article 8 and Annex I, EPA³⁰ has agreed that the operators have considered "... any impacts that the activity may have, including consideration of cumulative impacts in the light of existing and known planned activities" (Protocol Article 2(b)).^{31 32}

The EPA believes that the IEEs prepared by the U.S.-based operators have identified the potential environmental consequences associated with the implementation of the Interim Final Rule.³³ Section 5.3 discusses the potential direct, indirect and cumulative impacts on the Antarctic environment of the activities conducted by U.S.-based operators for the expeditions reviewed to date,

²⁹ Any such finding would be made with the concurrence of the National Science Foundation.

³⁰ Reviews are conducted in consultation with other interested federal agencies.

³¹ Under 40 CFR §8.10, the regulations do not apply to activities taken in cases of emergency relating to the safety of human life or of ships, aircraft, equipment and facilities of high value, or the protection of the environment, which require an activity to be undertaken without completion of the procedures set out in the regulations.

³² Based on the current scientific studies, there is no evidence of cumulative environmental impacts related to tourism.

³³ The environmental impact assessment process includes consideration of the Antarctic environment as a whole with specific reference to, amongst other things: certain physical and biological aspects (including threatened species or populations of such species); areas of biological, scientific, historic, aesthetic, or wilderness significance; and highly uncertain environmental effects, or unique or unknown environmental risks. See Appendix 19: 40 CFR §8.4(b).

and assesses the potential impacts of these activities in concert with the planned mitigation measures.³⁴ Thus, EPA believes that Section 5.3 also presents the potential environmental consequences associated with EPA's implementation of the Interim Final Rule. In the context of the Protocol, these environmental consequences are no more than minor or transitory. Therefore, EPA believes that for purposes of this EIS these impacts are unlikely to have a 'significant' effect.^{35 36}

The EPA recognizes that the Interim Final Rule requires only that environmental documentation be prepared and does not specifically require implementation of either the activities, as described, or the planned mitigation measures. However, if, for example, an operator proposes to mitigate the potential environmental impacts associated with a proposed activity, and the assessment of the proposed activity without the mitigative measures would be greater than minor or transitory effects, EPA assumes the operator will proceed with these mitigation measures. Otherwise, to be in compliance with the provisions of the Interim Final Rule, the operator's decision might have been to prepare a CEE, the different level of EIA documentation used when the reasonably foreseeable potential environmental effects of a proposed activity are likely to be more than minor or transitory.³⁷ Further, EPA assumes the activities will be undertaken as planned and described because the planned mitigation measures are generally one of the following:³⁸

- requirements or prohibitions of federal laws;³⁹

³⁴ Also see Appendix 24.

³⁵ The Act also requires EPA to promulgate regulations, consistent with Annex I of the Protocol, for coordination of the review of information regarding environmental impact assessment received from other Parties under the Protocol; this is Section 8.12 of the Interim Final Rule. For the same reasons as for the provisions for the environmental impact assessment of nongovernmental activities, EPA believes that, in the context of the Protocol, the environmental consequences are no more than minor or transitory for Section 8.12.

³⁶ Under the Interim Final Rule, EPA has applied a comparable threshold in determining whether an activity may have an impact that is more than minor or transitory to that used in determining if the activity will have a 'significant' effect for purposes of the National Environmental Policy Act. (C.f. 40 CFR §1508.27) 40 CFR Part 8, Preamble II.D.4.

³⁷ If planned mitigation measures are the basis for the level of documentation there is an obligation on the part of the operator to implement the planned mitigation. Otherwise, the level of documentation might not have met the requirements of the Protocol and the regulations.

³⁸ Based on experience to date, this has generally been true.

³⁹ Appendix 27 summarizes the domestic legislation implementing pertinent elements of the ATS and MARPOL 73/78. Potential environmental impacts and operator mitigation measures are identified in Appendix 24. For example, tour vessels are operated according to the domestic legislation of its flag state that gives effect to MARPOL, and U.S.-based tour operators adhere to applicable domestic statutes and regulations, and staff are trained and passengers educated on the mandates and prohibitions of the Antarctic Treaty, the Protocol, and U.S. regulations.

- adopted recommendations under the ATS;⁴⁰ and
- for most U.S.-based ship-based tour operators, requirements for membership under IAATO's Bylaws.⁴¹

Assessment of Environmental Consequences for Alternative 1: Alternative 1, the “No Action” alternative, is the promulgation of the Interim Final Rule as the final rule. Thus, the above assessment of environmental consequences for the Interim Final Rule is the same for Alternative 1. EPA assumes this assessment of the environmental consequences under the Interim Final Rule is also valid for the out-years and that the environmental consequences will remain no more than minor or transitory. This assumption is consistent with the information presented in Chapter 3 and summarized in Section 5.3 about the level and intensity of activity, including mitigation measures, for U.S.-based operators. EPA acknowledges that tourism intensity (e.g., the number of voyages, visitors, and landings) is projected to increase in the out-years. However, as acknowledged in Section 5.3.2, the data and information are not yet available to predict or project cumulative environmental impacts, if any. Likewise, the same is true for the ability to assess out-year cumulative environmental consequences, if any, that would be associated with implementation of Alternative 1. As data and information become available on cumulative impacts, the operators may, as appropriate, decide to modify their activities and/or their mitigation measures, or they may determine that a different level of environmental documentation is appropriate.

This assessment of the potential environmental consequences of the Interim Final Rule, and thus Alternative 1, is based on the IEE level of documentation and is consistent with the environmental documentation submitted by U.S.-based operators under the Interim Final Rule. As discussed in Section 3.14, these activities are projected to continue into the out-years. However, under Alternative 1, it is possible that in the out-years a preliminary environmental review will be selected by an operator as the level of documentation to assess whether the proposed activity may have less than a minor or transitory impact on the Antarctic environment (40 CFR §8.6). In this case, the nature of the potential environmental impacts are likely to be similar to those already identified though, when taken together with the planned mitigation measures, not of similar impact. The environmental consequences for this type of activity under Alternative 1 would also be less than minor or transitory.

⁴⁰ Potential environmental impacts and operator mitigation measures are identified in Appendix 24. Certain mitigation measures include staff training and passenger education on Recommendation XVIII-1 (see Appendix 8).

⁴¹ Potential environmental impacts and operator mitigation measures are identified in Appendix 24. Certain mitigation measures include adherence to the membership provisions of the IAATO Bylaws, specifically, agreement not having more than 100 passengers ashore at any one site at the same time. Although not an IAATO member, Orient Lines espouses IAATO's Bylaws and includes the same passenger limitation in its mitigation measures.

Under Alternative 1, it is also possible that in the out-years a CEE will be selected by an operator as the level of documentation necessary to enable informed consideration of the reasonably foreseeable potential environmental effects of a proposed activity and possible alternatives to the proposed activity (40 CFR §8.8). A CEE would be required if the environmental impacts of the proposed activity, including planned mitigation measures, are likely to be more than minor or transitory. The nature of the potential environmental impacts may be similar to those already identified though, when taken together with the planned mitigation measures, not of similar impact, or new potential impacts could be identified. In the context of the Protocol, the environmental consequences under Alternative 1 would also be more than minor or transitory under CEE-level documentation. Therefore, for purposes of this EIS, if activities proceed under CEE-level documentation the environmental consequences would be ‘significant.’

As summarized in Sections 3.14.7 and 5.2, out-year projections for U.S.-based nongovernmental operators are most likely to be the same level of activity as those conducted under the Interim Final Rule. Although it is possible that an out-year activity level would result in environmental consequences that are more than minor or transitory, this is not the anticipated level of environmental consequence for out-year activities by U.S.-based nongovernmental operators.

In summary, the environmental consequences, including cumulative impacts, for Alternative 1 are most likely to be no more than minor or transitory in the context of the Protocol. Therefore, for purposes of this EIS, the impacts of Alternative 1 are unlikely to have ‘significant’ environmental consequences. The issue of cumulative impacts, particularly in the Peninsula area, remains a concern in light of such intensity factors as the increasing number of tour operators, expeditions, and passengers landed; the number of sites visited; and the frequency at which certain sites are visited. However, the data and information are not yet available to assess out-year cumulative environmental consequences, if any, that would be associated with implementation of Alternative 1. As data and information become available on cumulative impacts, the operators may, as appropriate, decide to modify their activities and/or their mitigation measures, or they may determine that a different level of environmental documentation is appropriate.

Assessment of Other Consequences: As discussed above, the environmental consequences assessment process must also assess each alternative with regard to the following:

- The ability of the alternative to ensure that the U.S. is able to comply with its obligations under the Protocol;
- Assurance that the regulations under the alternative would be, as directed by the Act, “consistent with Annex I to the Protocol;”
- The ability of the alternative to ensure consistency between the governmental and nongovernmental EIA processes; and
- The burden imposed on the operators under the alternative.

Similar to the process for assessment of the environmental consequences, the following assesses the other consequences for the Interim Final Rule and then for Alternative 1.

The ability of Alternative 1 to ensure that the U.S. is able to comply with its obligations under the Protocol:

Interim Final Rule: Promulgation of the Interim Final Rule under the statutory authority of section 2403a of the Act enabled the U.S. to implement its obligations under the Protocol by providing nongovernmental operators with the specific requirements they must meet in order to comply with the Protocol as specified in 40 CFR §8.1(b) and as delineated in the specific provisions of the regulations.⁴²

Alternative 1: Selection of Alternative 1 for proposed promulgation would ensure that the U.S. is able to continue to comply with its obligations under the Protocol by providing nongovernmental operators with the specific requirements they must meet in order to comply with the Protocol. Alternative 1 would accomplish this by carrying forth Section 8.1(b) and the specific requirements as delineated in the provisions of the Interim Final Rule.⁴³

Assurance that the regulations under Alternative 1 would be, as directed by the Act, “consistent with Annex I to the Protocol:”

Interim Final Rule: As provided in 40 CFR §8.1(b), “[t]hese procedures are consistent with and implement the environmental impact assessment provisions of Article 8 and Annex I to the Protocol on Environmental Protection to the Antarctic Treaty.”

Alternative 1: Selection of Alternative 1 for proposed promulgation would assure that the regulations would be, as directed by the Act, “consistent with Annex I to the Protocol” by carrying forth Section 8.1(b) of the Interim Final Rule and the specific requirements as delineated in the provisions of the Interim Final Rule.

The ability of Alternative 1 to ensure consistency between the governmental and nongovernmental EIA processes:

Interim Final Rule: The Interim Final Rule does not apply to governmental activities. However, in promulgating the Interim Final Rule, EPA believed that, to the extent practicable, similar

⁴² This also includes the requirement for the U.S. government to provide for coordination of the review of information regarding environmental impact assessment received from other Parties under the Protocol pursuant to 40 CFR §8.12.

⁴³ This also includes the requirement for the U.S. government to provide for coordination of the review of information regarding environmental impact assessment received from other Parties under the Protocol pursuant to 40 CFR §8.12.

procedures should generally be used for assessing both governmental and nongovernmental activities. Consistent with this, the Interim Final Rule generally established procedures for assessing the impacts of nongovernmental activities in Antarctica similar to those used for governmental activities under the National Science Foundation regulations (40 CFR Part 8 Preamble II.D.2).⁴⁴ Further, the Preamble to the Interim Final Rule provides criteria for CEEs that included use of a threshold to be applied in determining whether an activity may have an impact that is more than minor or transitory which is similar to that used in determining if an activity will have a ‘significant’ effect for purposes of the National Environmental Policy Act (40 CFR Part 8, Preamble II.D.4). This threshold is consistent with the threshold established by the Act for EIA of governmental activities (Public Law 104-227, Section 4A.(B)).

Alternative 1: Selection of Alternative 1 for proposed promulgation would provide consistency between the governmental and nongovernmental EIA processes by carrying forth the specific requirements as delineated in the provisions of the Interim Final Rule, procedures that are similar to those used for governmental activities under the National Science Foundation regulations. Further, the Preamble for Alternative 1 would continue to provide criteria for CEEs that would include use of a threshold to be applied in determining whether an activity may have an impact that is more than minor or transitory which is similar to that used in determining if an activity will have a ‘significant’ effect for purposes of the National Environmental Policy Act. As with the Interim Final Rule, this threshold would be consistent with the threshold established by the Act for EIA of governmental activities.

The burden imposed on the operators under Alternative 1:

Interim Final Rule: In promulgating the Interim Final Rule, EPA considered the potential burden⁴⁵ imposed on the operators, including the effects on small businesses. Under the Interim Final Rule, nongovernmental operators, including tour operators, conducting expeditions to Antarctica are required to submit environmental documentation to EPA that evaluates the potential environmental impact of their proposed activities. The type of environmental documentation required depends on the nature and intensity of the environmental impacts that could result from the activity under consideration. If EPA has no comments, or if the documentation is satisfactorily revised in response to EPA comments, and the operator does not receive a notice from EPA that the environmental

⁴⁴ The issue of consistency with the U.S. governmental program does not apply to the requirement for the U.S. to provide for coordination of the review of information regarding environmental impact assessment received from other Parties under the Protocol pursuant to 40 CFR §8.12.

⁴⁵ As defined in 40 CFR Part 8, Preamble VII, ‘burden’ means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a federal agency. This includes the time needed to: review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

documentation does not meet the requirements of Article 8 and Annex I of the Protocol and the provisions of the regulations, the operator has no further obligations under the Interim Final Rule provided that any required procedures, which may include appropriate monitoring, are put in place to assess and verify the impact of the activity. The requirements are no greater than necessary to ensure that the U.S. will be in compliance with its international obligations under the Protocol and the Treaty. Further, EPA included a number of provisions, e.g., incorporation of information and consolidation of documentation, which should minimize the cost and reduce the burden on the operator (40 CFR Part 8 Preamble VII, 40 CFR Part 8 Preamble V).^{46 47}

Under the Interim Final Rule, it has been EPA's experience that operators make one submittal per year for all their expeditions for that year. Further, most U.S.-based operators use the paperwork reduction provisions at Section 8.4(d) of the Interim Final Rule. For example, the IEE prepared by IAATO on behalf of its U.S.-based member operators the first year the Interim Final Rule was in effect has served as the basic document for the IAATO members in the ensuing years. This document addresses more than one proposed expedition within one environmental document and addresses expeditions being carried out by more than one operator. This document has since been incorporated by the U.S.-based IAATO-member operators, and by Oceanites, by referring to it in subsequent years' documentation. In another example, a U.S.-based operator and an Australian operator submitted the same IEE to their respective governments (Quark, Zegrahm, Aurora IEE 1998). In summary, the intent of the Interim Final Rule has been to provide for opportunities to minimize the cost and burden on the operators while maintaining the ability of the U.S. to ensure that it is able to comply with its obligations under the Protocol and consistency with Annex I as directed by the Act.

Alternative 1: Selection of Alternative 1 for proposed promulgation would not pose undue burden on the operators. This Alternative would carry forth the specific requirements as delineated in the provisions of the Interim Final Rule, requirements are no greater than necessary to ensure that the U.S. will be in compliance with its international obligations under the Protocol and the Treaty. Further, Alternative 1 would included the paperwork reduction provisions of Section 8.4(d) which are intended to minimize the cost and reduce the burden on the operator.

In summary, Alternative 1 ensures that the U.S. is able to comply with its obligations under the Protocol; assures that the regulations would be, as directed by the Act, "consistent with Annex I to the Protocol;" provides for consistency between the governmental and nongovernmental EIA processes; and does not impose undue burden on the operators.

⁴⁶ No capital costs or operational and maintenance costs were anticipated to be incurred as a result of the Interim Final Rule; EPA is unaware of any such costs to the operators as a result of the implementation of the regulations.

⁴⁷ The requirement for the U.S. to provide for coordination of the review of information regarding environmental impact assessment received from other Parties under the Protocol pursuant to 40 CFR §8.12 does not impose any potential burden on nongovernmental operators.

5.5.2. Potential Consequences of Alternative 2: Preferred Alternative - Interim Final Rule with Certain Procedural and Administrative Modifications

Assessment of Environmental Consequences for Alternative 2: Alternative 2, EPA's preferred alternative, would modify the Interim Final Rule to respond to suggestions for certain changes in the EIA process including changes that would ensure consistency between the governmental and nongovernmental EIA processes and that could reduce the time and cost of the EIA process for the nongovernmental operators. The following assesses the environmental consequences for the modifications proposed under Alternative 2 relative to the basic assessment of environmental consequences for Alternative 1 as delineated in Section 5.5.1.

- Modification 1 consists of technical modifications and edits. These modifications and edits do not change the basic assessment of environmental consequences.
- Modification 2 would add a provision allowing operators to submit multi-year EIA documentation to address proposed expeditions for a period of up to five consecutive austral summer seasons. For expeditions that are specifically identified and assessed on a multi-year basis, this provision would eliminate the need for annual submission of EIA documentation provided that the conditions described in the multi-year document, including the assessment of cumulative impacts, is unchanged. The multi-year provision also would allow operators to update basic information and to provide information on additional activities to supplement the multi-year environmental document without having to revise and re-submit the entire document. Since this modification anticipates no changes in the planned activities or assessed impacts, this modification does not change the basic assessment of environmental consequences.
- Modification 3 would add a definition, or other provision, that would establish a threshold for "more than a minor or transitory impact." This is the same threshold definition applied to the environmental impact assessment of governmental activities in Antarctica, and is the criterion for CEEs that has been applied to the Interim Final Rule. This modification does not change the basic assessment of environmental consequences.

In summary, the environmental consequences, including cumulative impacts, for Alternative 2 are most likely to be no more than minor or transitory in the context of the Protocol. Therefore, for purposes of this EIS, these impacts are unlikely to have a 'significant' effect. As discussed under Alternative 1, the issue of cumulative impacts, particularly in the Peninsula area, remains a concern. However, the data and information are not yet available to assess out-year cumulative environmental consequences, if any, that would be associated with implementation of Alternative 2. As data and information become available on cumulative impacts, the operators may, as appropriate, decide to modify their activities and/or their mitigation measures, or they may determine that a different level of environmental documentation is appropriate.

Assessment of Other Consequences: Similar to the process for assessment of the environmental consequences, the following assesses the other consequences for Alternative 2 relative to Alternative 1 as delineated in Section 5.5.1.

The ability of Alternative 2 to ensure that the U.S. is able to comply with its obligations under the Protocol:

Selection of Alternative 2 for proposed promulgation would ensure that the U.S. is able to continue to comply with its obligations under the Protocol by providing nongovernmental operators with the specific requirements they must meet in order to comply with the Protocol. Alternative 2 would accomplish this by carrying forth Section 8.1(b) and the specific requirements as delineated in the provisions of the Interim Final Rule.⁴⁸

Assurance that the regulations under Alternative 2 would be, as directed by the Act, “consistent with Annex I to the Protocol:”

Selection of Alternative 2 for proposed promulgation would assure that the regulations would be, as directed by the Act, “consistent with Annex I to the Protocol” by carrying forth Section 8.1(b) of the Interim Final Rule and the specific requirements as delineated in the provisions of the Interim Final Rule.

The ability of Alternative 2 to ensure consistency between the governmental and nongovernmental EIA processes:

Selection of Alternative 2 for proposed promulgation would ensure consistency between the governmental and nongovernmental EIA processes by carrying forth the specific requirements as delineated in the provisions of the Interim Final Rule, procedures that are similar to those used for governmental activities under the National Science Foundation regulations.

Alternative 2 would, however, go beyond Alternative 1 in that it would ensure regulatory consistency with U.S. governmental EIA regulations for activities in Antarctica. Alternative 2 would add a definition (or other provision) that would establish a regulatory threshold for “more than a minor or transitory impact” to have the same meaning as “significantly affecting the quality of the human environment.” This is the same criterion EPA has applied in its implementation of the Interim Final Rule, criteria delineated in the Preamble to the Interim Final Rule. Under Alternative 1, non-regulatory consistency would be accomplished in the same manner; under Alternative 2, adding a definition (or other provision) would ensure regulatory consistency.

⁴⁸ This also includes the requirement for the U.S. government to provide for coordination of the review of information regarding environmental impact assessment received from other Parties under the Protocol pursuant to 40 CFR §8.12.

The burden imposed on the operators under Alternative 2:

Selection of Alternative 2 for proposed promulgation would not pose undue burden on the operators. This Alternative would carry forth the specific requirements as delineated in the provisions of the Interim Final Rule, requirements are no greater than necessary to ensure that the U.S. will be in compliance with its international obligations under the Protocol and the Treaty. Further, Alternative 2 would include the paperwork reduction provisions of Section 8.4(d) which are intended to minimize the cost and reduce the burden on the operator.

Alternative 2 would, however, go beyond Alternative 1 in that Alternative 2 would add a provision allowing operators to submit multi-year EIA documentation to address proposed expeditions for a period of up to five consecutive austral summer seasons.

In summary, Alternative 2 ensures that the U.S. is able to comply with its obligations under the Protocol; assures that the regulations would be, as directed by the Act, “consistent with Annex I to the Protocol;” ensures consistency between the governmental and nongovernmental EIA processes; and does not impose undue burden on the operators.

5.5.3. Potential Consequences of Alternative 3: Interim Final Rule with Modifications Beyond Those Considered to be Procedural or Administrative

Assessment of Environmental Consequences for Alternative 3: Alternative 3 proposes modifications to the Interim Final Rule beyond those of Alternative 2 that are considered to be procedural or administrative, but does not go as far as Alternatives 4 and 5 in changing the basic approach set out in the Interim Final Rule.⁴⁹ The following assesses the environmental consequences for the modifications proposed under Alternative 3 relative to the basic assessment of environmental consequences for Alternative 1 as delineated in Section 5.5.1.

- Modification 1 consists of incorporating all three of the procedural and administrative modifications proposed under Alternative 2:
 1. Incorporate the technical modifications and edits;
 2. Add a provision allowing operators to submit multi-year EIA documentation to address proposed expeditions for a period of up to five consecutive austral summer seasons; and

⁴⁹ As first discussed in Section 4.3.2, Alternative 3 is one of the Alternatives that incorporates modifications related to issues raised during scoping which EPA, for reasons of completeness, is addressing for the most part even though the U.S. government does not have authority to implement because they are inconsistent with the provisions of the Protocol, EPA and other federal agencies lack statutory authority under the Act to issue regulations incorporating such provisions, and because the Act requires that the regulations with respect to nongovernmental activities be consistent with Annex I to the Protocol. These three Alternatives are included for purposes of public disclosure. However, the U.S. government does not advocate pursuing these Alternatives.

3. Add a definition, or other provision, that would establish a threshold for “more than a minor or transitory impact.”

These modifications do not change the basic assessment of environmental consequences.

- Modification 2 would broaden the definition of operator to include foreign operators “doing business in the United States.”⁵⁰ As discussed in Section 4.4.3, the reason to broaden the definition of “operator” would be to require foreign-based operators from countries that are not Parties to the Protocol that carry U.S. passengers to submit EIA documentation to EPA. Since countries that are not Parties have not agreed to abide by the obligations of the Protocol, they do not require their nongovernmental operators to undertake environmental impact assessment of proposed activities in accordance with Article 8 and Annex I to the Protocol. Such operators may not have applied the assessment procedures set out in Annex I in the planning processes leading to decisions about any activities undertaken in the Antarctic Treaty area.⁵¹ Thus, for purposes of all U.S. citizens traveling to Antarctica, Alternative 3 with this modification would ensure that the basic assessment of environmental consequences does not change. This provision, which would provide for unilateral U.S. regulation of non-U.S. operators, could have the effect of reducing international efforts to bring these countries into the ATS and the Protocol, thus weakening the efficacy of environmental measures under the ATS.

However, as discussed in Section 4.4.3, a provision to broaden the definition of operator to include foreign operators who merely are “doing business in the U.S.” would be contrary to the U.S. government’s interpretation of the Protocol. Article 8 requires Parties to ensure that the assessment procedures set out in Annex I are applied to “...tourism and all other ... nongovernmental activities in the Antarctic Treaty area for which advance notice is required under Article VII(5) of the Antarctic Treaty” Article VII(5) provides that a Party must give notice for “... all expeditions to and within Antarctica, on the part of its ships or nationals, and all expeditions to Antarctica organized in or proceeding from its territory.” Similarly, the Act explicitly requires environmental impact assessments of nongovernmental activities organized in or proceeding from the U.S. for which the United States is required to give advance notice under Article VII(5) of the Treaty. Thus, for purposes of the Act, the United States can assert jurisdiction over operators only where the relevant expedition is

⁵⁰ This modification also proposes that if it is not feasible to broaden the definition of “operator” as proposed, then under Alternative 3, the final rule would apply to all U.S. citizens going to Antarctica on nongovernmental expeditions.

⁵¹ For example, as long as it does not organize expeditions in the U.S., Canadian-based operator, Marine Expeditions, has no legal obligation to undertake an environmental impact assessment of its proposed expeditions. The company has, however, voluntarily prepared environmental documentation and provided a copy to EPA and others. Based on information in IAATO’s annual passenger estimates, it is estimated that Marine Expeditions may carry about 12% of the U.S. citizens traveling to Antarctica. However, in 2001, Marine Expeditions filed for bankruptcy; its future status as an Antarctic tour operator is unknown.

organized in or proceeding from the United States. It is conceivable that a non-U.S. based operator could conduct such a level of activity within the United States that it could be deemed to be organizing an activity in the United States, and thus the United States would have jurisdiction in such a circumstance. Nevertheless, mere sale of tickets by a foreign operator, for example, would not rise to the level of organizing an expedition in the United States. In these circumstances, a provision amending the definition of “operator” to any foreign operator merely “doing business in the United States” would be too broad and thus inconsistent with the Treaty’s requirement that the expedition be organized in or proceeding from the United States.

- Modification 3 would include a provision requiring that EIA documents include a discussion of compliance with other applicable provisions of the Protocol and relevant U.S. statutes. This modification would ensure that operators have considered all applicable provisions of the Protocol and relevant U.S. statutes. Adding such a requirement would not change the assessment of environmental consequences since operators are already subject to compliance with applicable federal laws, and it would be inconsistent with the Act’s delineation of roles for various federal agencies. As discussed in Section 4.4.3, such a blanket requirement would not necessarily reduce environmental impacts.⁵² Further, this modification does not change the three levels of environmental documentation and the associated levels of impact. Thus, this modification does not change the basic assessment of environmental consequences.

In summary, the environmental consequences, including cumulative impacts, for Alternative 3 are most likely to be no more than minor or transitory in the context of the Protocol. Therefore, for purposes of this EIS, these impacts are unlikely to have a ‘significant’ effect. As discussed under Alternative 1, the issue of cumulative impacts, particularly in the Peninsula area, remains a concern. However, the data and information are not yet available to assess out-year cumulative environmental consequences, if any, that would be associated with implementation of Alternative 3. As data and information become available on cumulative impacts, the operators may, as appropriate, decide to modify their activities and/or their mitigation measures, or they may determine that a different level of environmental documentation is appropriate.

Assessment of Other Consequences: Similar to the process for assessment of the environmental consequences, the following assesses the other consequences for Alternative 3 relative to Alternative 1 as delineated in Section 5.5.1.

The ability of Alternative 3 to ensure that the U.S. is able to comply with its obligations under the Protocol:

⁵² Under Article 8, the assessment procedures set out in Annex I are to be applied in the planning processes leading to decisions about any activities undertaken in the Antarctic Treaty area. Annex I requires that the environmental impacts of proposed activities be considered.

Selection of Alternative 3 for proposed promulgation would ensure that the U.S. is able to continue to comply with its obligations under the Protocol by providing nongovernmental operators with the specific requirements they must meet in order to comply with the Protocol. Alternative 3 would accomplish this by carrying forth Section 8.1(b) and the specific requirements as delineated in the provisions of the Interim Final Rule.⁵³

Assurance that the regulations under Alternative 3 would be, as directed by the Act, “consistent with Annex I to the Protocol:”

Although selection of Alternative 3 for proposed promulgation would assure that the procedural requirements of the regulations would be, as directed by the Act, “consistent with Annex I to the Protocol,” modifications 2 and 3 would not be consistent with Annex I to the Protocol. As discussed in Section 4.4.3, broadening the definition of “operator” to apply to foreign-based operators who organize expeditions outside the U.S. or to individual citizens is not consistent with the advance notice provision of Article 8 of the Protocol⁵⁴ and, thus, the statutory directive of the Act. Further, a provision requiring that EIA documents include a discussion of compliance with other applicable provisions of the Protocol and relevant U.S. statutes is not required by Annex I and, thus, not the Act.

The ability of Alternative 3 to ensure consistency between the governmental and nongovernmental EIA processes:

As with Alternative 2, selection of Alternative 3 for proposed promulgation would ensure consistency between the governmental and nongovernmental EIA processes by carrying forth the specific requirements as delineated in the provisions of the Interim Final Rule, procedures that are similar to those used for governmental activities under the National Science Foundation regulations. Also like Alternative 2, Alternative 3 would further ensure regulatory consistency by adding a definition (or other provision) that would establish a threshold for “more than a minor or transitory impact” to have the same meaning as “significantly affecting the quality of the human environment.”

Selection of Alternative 3 for proposed promulgation would, however, not ensure consistency between the governmental and nongovernmental EIA processes. Alternative 3 includes a modification requiring EIA documents to include a discussion of compliance with other applicable provisions of the Protocol and relevant U.S. statutes. Such a modification would require more of nongovernmental operators than is required of the U.S. government for its Antarctic activities, thus,

⁵³ This also includes the requirement for the U.S. government to provide for coordination of the review of information regarding environmental impact assessment received from other Parties under the Protocol pursuant to 40 CFR §8.12.

⁵⁴ Article 8 is referenced in Annex I: “The environmental impacts of proposed activities referred to in Article 8 of the Protocol shall ...”.

this modification would obligate nongovernmental operators to requirements that are not consistent with the EIA requirements applied to U.S. governmental entities (see Section 4.4.3).

The burden imposed on the operators under Alternative 3:

Alternative 3 would include the paperwork reduction provisions of Section 8.4(d) and would also add a provision allowing operators to submit multi-year EIA documentation to address proposed expeditions for a period of up to five consecutive austral summer seasons. However, selection of Alternative 3 for proposed promulgation would pose undue burden on the operators in that it would include specific requirements that are greater than necessary to ensure that the U.S. will be in compliance with its international obligations under the Protocol and the Treaty by including a provision requiring that EIA documents include a discussion of compliance with other applicable provisions of the Protocol and relevant U.S. statutes. Operators may, and do, include such discussions in their environmental documentation, as appropriate. However, imposing this as a requirement places obligations and undue burden on U.S. operators not required under Annex I or the Act, or for U.S. government activities in Antarctica.

EPA is concerned that the final rule not place undue burden on operators, including small business operators. Should this occur, there is a potential for one or more U.S.-based operators to move their operations to another country, including a country not Party to the Protocol. A move to another country cannot be ruled out given the international nature of the tour industry.⁵⁵ For example, adverse consequences on the Antarctic environment could be created if the final rule has the effect of driving U.S.-based operators to non-Party countries. If this were to happen, in most circumstances there would be no obligation on the part of the operator to comply with the planning processes delineated in Article 8 and Annex I of the Protocol leading to decisions about any activities undertaken in the Antarctic Treaty area.

In summary, Alternative 3 ensures that the U.S. is able to comply with its obligations to require EIA documentation under the Protocol. However, modification 2 is not generally consistent with the Protocol, and modifications 2 and 3 are not required in order for the U.S. to ensure that it is able to comply with its obligations under the Protocol, nor would they be “consistent with Annex I to the Protocol,” as directed by the Act. Modification 3 would impose obligations and undue burden on U.S. nongovernmental operators not required under Annex I or the Act, and it would not be consistent with the EIA process or requirements applied to U.S. governmental entities.

5.5.4. Potential Consequences of Alternative 4: “Substantive” Rule

Assessment of Environmental Consequences for Alternative 4: Alternative 4 would modify the Interim Final Rule to include substantive requirements in association with the environmental

⁵⁵ See reference in Section 3.14.3 to take-overs by world-wide groups of certain U.S.-based operators and written statements submitted to EPA during its July 14, 1998 scoping meeting (Appendix 20).

documentation requirements for nongovernmental activities in Antarctica, and to provide for federal direction over the level of environmental document required.⁵⁶ The following assesses the environmental consequences for the modifications proposed under Alternative 4 relative to the basic assessment of environmental consequences for Alternative 1 as delineated in Section 5.5.1.

- Modification 1 consists of incorporating all four of the procedural and administrative modifications proposed under Alternative 2:
 1. Incorporate the technical modifications and edits;
 2. Add a provision allowing operators to submit multi-year EIA documentation to address proposed expeditions for a period of up to five consecutive austral summer seasons; and
 3. Add a definition, or other provision, that would establish a threshold for “more than a minor or transitory impact.”

These modifications do not change the basic assessment of environmental consequences.

- Modification 2 consists of incorporating the two additional modifications proposed in Alternative 3:
 1. Broaden the definition of operator to include foreign operators “doing business in the United States,”⁵⁷ and
 2. Include a provision requiring that EIA documents include a discussion of compliance with other applicable provisions of the Protocol and relevant U.S. statutes.

As discussed in Section 5.5.3, the modification to broaden the definition of “operator” would, for purposes of all U.S. citizens traveling to Antarctica, ensure that the basic assessment of environmental consequences does not change.⁵⁸ Including a provision requiring that EIA documents

⁵⁶ As first discussed in Section 4.3.2, Alternative 4 is one of the Alternatives that for the most part incorporates modifications related to issues raised during scoping which EPA, for reasons of completeness, is addressing even though the U.S. government does not have authority to implement because they are inconsistent with the provisions of the Protocol, EPA and other federal agencies lack statutory authority under the Act to issue regulations incorporating such provisions, and because the Act requires that the regulations with respect to nongovernmental activities be consistent with Annex I to the Protocol. These three Alternatives are included for purposes of public disclosure. However, the U.S. government does not advocate pursuing these Alternatives.

⁵⁷ This modification also proposes that if it is not feasible to broaden the definition of “operator” as proposed, then under Alternative 3, the final rule would apply to all U.S. citizens going to Antarctica on nongovernmental expeditions.

⁵⁸ However, as discussed in Section 4.4.3, a provision to broaden the definition of operator to include foreign operators who are merely “doing business in the U.S.” would be contrary to the U.S. government’s

include a discussion of compliance with other applicable provisions of the Protocol and relevant U.S. statutes does not change the three levels of environmental documentation and the associated levels of impact. Thus, this modification does not change the basic assessment of environmental consequences.⁵⁹

- Modification 3 would add a substantive requirement that compliance with the provisions of Article 3 of the Protocol be demonstrated in EIA documentation. This modification does not change the three levels of environmental documentation and the associated levels of impact. Thus, this modification does not change the basic assessment of environmental consequences.⁶⁰ However, as discussed in Section 4.4.4, the U.S. government does not have any authority to prevent activities for which proper environmental assessments have been undertaken provided the proposed activities are not otherwise in conflict with U.S. law.⁶¹ Further, Article 3 of the Protocol is implemented through the Annexes to the Protocol. In and of itself it does not impose mandatory requirements. Moreover, Article 8 provides for an EIA process for impacts of planned activities but does not impose substantive requirements. Therefore, this proposed substantive modification is inconsistent with the Protocol and the Act. Further, based on EPA's assessment of the impacts from current and anticipated out-year nongovernmental activities, this provision would likely not result in substantial environmental benefits.
- Modification 4 would add a provision which would allow the federal government to prevent an activity from proceeding if anticipated impacts are determined to be unacceptable. If a substantive provision could not be included in the final rule, include a provision to require insurance and bonding to ensure corrective actions are taken where the impacts of a nongovernmental action cause actual environmental harm.

interpretation of the Protocol and the Act.

⁵⁹ However, this provision, which would provide for unilateral U.S. regulation of non-U.S. operators, could have the effect of reducing international efforts to bring these countries into the ATS and the Protocol, thus weakening the efficacy of environmental measures under the ATS.

⁶⁰ Under this Alternative, the operator would be required to demonstrate in the documentation that the activity has been modified, suspended or canceled if it may result in or threaten to result in impacts upon the Antarctic environment or dependent or associated ecosystems inconsistent with the principles of Article 3 of the Protocol. Regardless of the level of environmental documentation at which this may occur, the assessment of environmental consequences in Section 5.5.1.A remains the same; e.g., most likely no more than minor or transitory and, on occasion, less than, or more than, minor or transitory.

⁶¹ Certain activities may be illegal under U.S. laws or may be legal only with a permit issued by the responsible authority. For example, it is illegal to "take" or to engage in harmful interference with any native bird or mammal or plants unless such activities are reviewed and permitted by the National Science Foundation. Further, under the Interim Final Rule and this Alternative, persons traveling to Antarctica are subject to the requirements of the Marine Mammal Protection Act, 16 U.S.C. §1371 *et seq.* (see Appendix 27).

This modification does not change the three levels of environmental documentation and the associated levels of impact. Thus, this modification does not change the basic assessment of environmental consequences. However, as discussed in Section 4.4.4, the U.S. government does not have any authority to prevent activities for which proper environmental assessments have been undertaken provided the proposed activities are not otherwise in conflict with U.S. law.⁶² The Protocol specifically anticipates that activities with greater than a minor or transitory impact may be conducted so long as a CEE is prepared. Further, Article 3 of the Protocol is implemented through the Annexes to the Protocol. In and of itself it does not impose mandatory requirements. Moreover, Article 8 provides for an EIA process for impacts of planned activities but does not impose substantive requirements. Therefore, this proposed substantive modification is inconsistent with the Protocol and the Act. Further, based on EPA's assessment of the impacts from current and anticipated out-year nongovernmental activities, this provision would likely not result in substantial environmental benefits.

- Modification 5 would add a provision for public notice and comment on IEEs similar to the process for CEEs. This modification would include an obligation on the part of preparers to respond to points raised in the public comment process. This modification does not, however, change these two levels of environmental documentation and the associated levels of impact. Thus, this modification does not change the basic assessment of environmental consequences.
- Modification 6 would add a provision to require a CEE when any new landing sites are included, or are proposed as possible landing sites, in the itinerary of expeditions by nongovernmental operators. This modification would require the more detailed directions for the CEE-level assessment but does not, however, change the potential level of impact associated with a CEE.⁶³ Thus, this modification does not change the basic assessment of environmental consequences for CEE-level of activity and, therefore, it also does not change the basic assessment of environmental consequences.

⁶² Certain activities may be illegal under U.S. laws or may be legal only with a permit issued by the responsible authority. For example, it is illegal to “take” or to engage in harmful interference with any native bird or mammal or plants unless such activities are reviewed and permitted by the National Science Foundation. Further, under the Interim Final Rule and this Alternative, persons traveling to Antarctica are subject to the requirements of the Marine Mammal Protection Act, 16 U.S.C. §1371 *et seq.* (see Appendix 27).

⁶³ There is not a scientific basis for concluding that any visit to a new site would always have the likelihood of a greater than minor or transitory impact; thus, the conclusion that a CEE should be prepared in every case is not supported. Such a provision would not necessarily reduce environmental impacts.

In summary, the environmental consequences, including cumulative impacts, for Alternative 4 are most likely to be no more than minor or transitory. Although substantive provisions could reduce the level of consequences, particularly for CEE-level activities, substantive provisions are not consistent with the Protocol and EPA lacks statutory authority to impose substantive requirements. As discussed under Alternative 1, the issue of cumulative impacts, particularly in the Peninsula area, remains a concern. However, the data and information are not yet available to assess out-year cumulative environmental consequences, if any, that would be associated with implementation of Alternative 4. As data and information become available on cumulative impacts, the operators may, as appropriate, decide to modify their activities and/or their mitigation measures, or they may determine that a different level of environmental documentation is appropriate.

Assessment of Other Consequences: Similar to the process for assessment of the environmental consequences, the following assesses the other consequences for Alternative 4 relative to Alternative 1 as delineated in Section 5.5.1.

The ability of Alternative 4 to ensure that the U.S. is able to comply with its obligations under the Protocol:

Selection of Alternative 4 for proposed promulgation would ensure that the U.S. is able to continue to comply with its obligations under the Protocol by providing nongovernmental operators with the specific requirements they must meet in order to comply with the Protocol. Alternative 4 would accomplish this by carrying forth Section 8.1(b) and the specific requirements as delineated in the provisions of the Interim Final Rule.⁶⁴

Assurance that the regulations under Alternative 4 would be, as directed by the Act, “consistent with Annex I to the Protocol:”

Selection of Alternative 4 for proposed promulgation would ensure that the procedural requirements of the regulations would be, as directed by the Act, “consistent with Annex I to the Protocol.” However, as with Alternative 3, the modifications to broaden the definition of “operator” to apply to foreign-based operators who organize expeditions outside the U.S. or to individual citizens and to include a provision requiring that EIA documents include a discussion of compliance with other applicable provisions of the Protocol and relevant U.S. statutes would not be consistent with Annex I to the Protocol. Further, as discussed in Section 4.4.4, the two modifications that would impose substantive requirements on nongovernmental operators are contrary to the U.S. government’s interpretation of the Protocol and are not consistent with EPA’s statutory directive under the Act.

⁶⁴ This also includes the requirement for the U.S. government to provide for coordination of the review of information regarding environmental impact assessment received from other Parties under the Protocol pursuant to 40 CFR §8.12.

The ability of Alternative 4 to ensure consistency between the governmental and nongovernmental EIA processes:

Selection of Alternative 4 for proposed promulgation would ensure consistency between the governmental and nongovernmental EIA processes by carrying forth the specific requirements as delineated in the provisions of the Interim Final Rule, procedures that are similar to those used for governmental activities under the National Science Foundation regulations. Also, like Alternative 2 and 3, Alternative 4 would further ensure regulatory consistency by adding a definition (or other provision) that would establish a threshold for “more than a minor or transitory impact” to have the same meaning as “significantly affecting the quality of the human environment.”

Selection of Alternative 4 for proposed promulgation would, however, not ensure consistency between the governmental and nongovernmental EIA processes. Like Alternative 3, Alternative 4 includes a modification requiring EIA documents to include a discussion of compliance with other applicable provisions of the Protocol and relevant U.S. statutes. Such a modification would result in requirements that are not consistent with the EIA process or requirements that apply to U.S. governmental entities (see Section 4.4.3). Further, inclusion of any of substantive provisions would impose substantive requirements that are contrary to the U.S. government’s interpretation of Article 3 of the Protocol and as such, would not be consistent with EPA’s directive under the Act or with the EIA requirements that apply to U.S. government activities in Antarctica. The modification to establish a procedure for public notice and comment on IEEs similar to the process for CEEs is not required under Annex I and would be inconsistent with the process and requirements for the U.S. governmental program.

The burden imposed on the operators under Alternative 4:

Alternative 4 would include the paperwork reduction provisions of Section 8.4(d) and would also add a provision allowing operators to submit multi-year EIA documentation to address proposed expeditions for a period of up to five consecutive austral summer seasons. In addition, however, economic burden could be imposed on operators under the substantive provisions which would require compliance with the provisions of Article 3 and which would allow the federal government to prevent an activity from proceeding if the anticipated impacts are determined to be unacceptable. Further, selection of Alternative 4 for proposed promulgation would include specific requirements that are greater than necessary to ensure that the U.S. will be in compliance with its international obligations under the Protocol and the Treaty and would pose obligations and undue burden on the operators. These provisions are discussed in the analysis of Alternative 4 in Section 4.4.4 and include: requiring that EIA documents include a discussion of compliance with other applicable provisions of the Protocol and relevant U.S. statutes,⁶⁵ an insurance and bonding provision in lieu of

⁶⁵ Operators may, and do, include such discussions in their environmental documentation, as appropriate.

substantive requirements,⁶⁶ establishing procedures for public notice and comment on IEEs similar to the process for CEEs,⁶⁷ and requiring that a CEE be prepared when any new sites are proposed as possible landing sites by nongovernmental operators.⁶⁸

As expressed earlier, EPA is concerned that the final rule not place undue burden on operators, including small business operators. Should this occur, there is a potential for one or more U.S.-based operators to move their operations to another country, including a country not Party to the Treaty. A move to another country cannot be ruled out given the international nature of the tour industry.⁶⁹ For example, adverse consequences on the Antarctic environment could be created if the final rule has the effect of driving U.S.-based operators to non-Party countries. If this were to happen, there would be no obligation on the part of the operator to comply with the planning processes delineated in Article 8 and Annex I of the Protocol leading to decisions about any activities undertaken in the Antarctic Treaty area.

In summary, Alternative 4 ensures that the U.S. is able to comply with its obligations to require EIA documentation under the Protocol. However, certain of the proposed modifications are not required in order for the U.S. to ensure that it is able to comply with its obligations under the Protocol, nor would they be, as directed by the Act, “consistent with Annex I to the Protocol.” Further, certain modifications would not be consistent with the EIA process or requirements that apply to U.S. governmental entities, and several of the proposed modifications would impose obligations and undue burden on U.S. nongovernmental operators not required under Annex I or the Act.

⁶⁶ Such an activity would most likely occur at the CEE level of documentation which, under Annex I of the Protocol, is legitimate; e.g., this is the level of documentation for which a proposed activity is likely to have more than a minor or transitory impact. To date, EPA has not received a CEE from an operator.

⁶⁷ Under the Interim Final Rule, EPA publishes notice of receipt of IEEs on one of its websites and makes copies available to the public upon request. Based on its experience to date, EPA has no evidence that interested parties have been unable to obtain IEEs and to offer comments to the operators under this notification scheme.

⁶⁸ For most activities undertaken by U.S.-based operators to date and projected to occur in the out-years, IEEs have been, and are most likely to continue to be, the appropriate level of documentation. For example, as described in Chapter 3 and summarized in Sections 5.2 and 5.3, on average, the number of new landing sites in the Peninsula area has been 14 sites per year, and the process for landings used by tour operators results in potential environmental impacts that are no more than minor or transitory. These same types of activities, with the appropriate mitigation measures, are anticipated to continue in the out-years with the same level of impact.

⁶⁹ See reference in Section 3.14.3 to take-overs by world-wide groups of certain U.S.-based operators and written statements submitted to EPA during its July 14, 1998 scoping meeting (Appendix 20).

5.5.5. Potential Consequences of Alternative 5: “Discretionary” Rule

Assessment of Environmental Consequences for Alternative 5: Alternative 5 would modify the Interim Final Rule by eliminating EPA’s responsibility for making a finding, with the concurrence of the National Science Foundation, that the documentation submitted does not meet the requirements of Article 8 and Annex I and the provisions of the regulations.⁷⁰ The following assesses the environmental consequences for the modifications proposed under Alternative 5 relative to the basic assessment of environmental consequences for Alternative 1 as delineated in Section 5.5.1.

- Modification 1 consists of incorporating all three of the procedural and administrative modifications proposed under Alternative 2:
 1. Incorporate the technical modifications and edits;
 2. Add a provision allowing operators to submit multi-year EIA documentation to address proposed expeditions for a period of up to five consecutive austral summer seasons; and
 3. Add a definition, or other provision, that would establish a threshold for “more than a minor or transitory impact.”

These modifications do not change the basic assessment of environmental consequences.

- Modification 2 would eliminate the provisions in the Interim Final Rule that provide for EPA to make a finding with the concurrence of the National Science Foundation that the documentation submitted does not meet the requirements of Article 8 and Annex I of the Protocol and the provisions of the regulations; and modification 3 would eliminate the associated enforcement provision. These modifications do not change the three levels of environmental documentation and the associated levels of impact. However, under these proposed modifications, the environmental impacts for a specific activity, or set of activities, may not be accurately described if the operator has not selected the correct level of documentation. Under this Alternative, there is a potential for the environmental consequences to be greater than would otherwise be indicated by the level of EIA documentation prepared by the operator.⁷¹ As

⁷⁰ As first discussed in Section 4.3.2, Alternative 5 is one of the three Alternatives that incorporate modifications related to issues which EPA included for reasons of completeness. Alternative 5 incorporates modifications under which the U.S. government would not be able to ensure that its obligations under the Protocol would be fulfilled. These modifications would be inconsistent with the provisions of the Protocol and, thus, contrary to the requirements of the Act.

⁷¹ As discussed in Section 5.5.1, the basic assessment of environmental consequences for the alternatives is derived from the assessment of environmental consequences for the Interim Final Rule and then projected into the out-years (e.g., the assessment of environmental consequences for Alternative 1). Under this process, the basic assessment of environmental consequences for the Interim Final Rule is derived from the environmental impact assessment of the activities undertaken by U.S.-based operators in compliance with the Interim Final Rule.

discussed in Section 4.4.5, EPA does not believe, based on past experience, that these modifications would allow the U.S. government to ensure that the assessment procedures set out in Annex I are appropriately applied by U.S.-based operators in the planning processes leading to their decisions about any activities undertaken in the Antarctic Treaty area (Protocol Article 8). Thus, this is not a viable modification.

- Modification 4 would eliminate the preliminary environmental review provision in the Interim Final Rule. As discussed under Section 4.4.5, the preliminary review process is intended to assess the potential direct and reasonably foreseeable indirect impacts on the Antarctic environment of the proposed expedition in sufficient detail to assess whether the proposed activity may have less than a minor or transitory impact. This process is not part of or inherent in the basic information requirements (Interim Final Rule Section 8.4) that would be retained under the final rule, a provision consistent with the Advance Notice information provided by operators to the Department of State. It has been EPA's experience under the Interim Final Rule, that the initial draft EIAs prepared by the operators have not always supported a conclusion consistent with the level of potential impact associated with the proposed activities described in the documentation, including draft PERM-level documentation. Thus, under this Alternative, there is a potential for the environmental consequences to be greater than would otherwise be indicated by the level of EIA documentation prepared by the operator. As discussed in Section 4.4.5, eliminating the PERM provision would not allow EPA, and thus the U.S. government, to ensure that the assessment procedures set out in Annex I are appropriately applied in the planning processes leading to decisions about any activities undertaken in the Antarctic Treaty area (Protocol Article 8).
- Modification 5 would add a provision to provide for an automatic reciprocity when environmental documentation prepared for other Parties is submitted by a U.S.-based operator. This modification does not change the three levels of environmental documentation and the associated levels of impact. However, as discussed in Section 4.4.5, it is the responsibility of the United States to comply with its obligations under the Protocol. Thus, while this is a "workable" provision, the U.S. government would need to determine whether, in an appropriate case, it should rely on the regulatory procedures of another Party.
- Modification 6 would add a provision for "Categorical Exclusions." As discussed in Section 4.4.5, Alternative 5 would include a provision for categorical exclusion including a categorical exclusion for Antarctic ship-based tourism conducted according to the "Lindblad Model." IAATO's proposal to categorically exclude Antarctic ship-based tourism conducted under a "Lindblad Model" does not fit well with the approach used by the U.S. government for categorical exclusions because it does not identify actions to be excluded in sufficient detail. Further, more needs to be known about potential cumulative impacts of nongovernmental activities

undertaken by U.S.-based ship-based tour operators before deciding to exclude some or all of these specific activities. A categorical exclusion provision could, however, be an amendment to the final rule in the future if one or more appropriate categorical exclusions are identified.⁷² An activity that could be designated in the future as categorically excluded would have the potential for environmental impacts that are less than minor or transitory; thus, the environmental consequences under this modification would also be less than minor or transitory under the Protocol.⁷³

In summary, the environmental consequences, including cumulative impacts, for certain of the modifications under Alternative 5 have the potential to be greater than would otherwise be indicated by the level of EIA documentation prepared by the operator. As discussed under Alternative 1, the issue of cumulative impacts, particularly in the Peninsula area, remains a concern. However, the data and information are not yet available to assess out-year cumulative environmental consequences, if any, that would be associated with implementation of Alternative 5. As data and information become available on cumulative impacts, the operators may, as appropriate, decide to modify their activities and/or their mitigation measures, or they may determine that a different level of environmental documentation is appropriate.

Assessment of Other Consequences: Similar to the process for assessment of the environmental consequences, the following assesses the other consequences for Alternative 5 relative to Alternative 1 as delineated in Section 5.5.1.

The ability of Alternative 5 to ensure that the U.S. is able to comply with its obligations under the Protocol:

Selection of Alternative 5 for proposed promulgation would not ensure that the U.S. is able to comply with its obligations under the Protocol. This would be the case under all modifications except for modification 1.

Assurance that the regulations under Alternative 5 would be, as directed by the Act, “consistent with Annex I to the Protocol:”

Selection of Alternative 5 for proposed promulgation would not assure that the regulations would be, as directed by the Act, “consistent with Annex I to the Protocol.” As discussed in Section

⁷² The final rule would have to be amended through the appropriate rule-making procedures to add a provision for categorical exclusions.

⁷³ Section 4.4.5 discusses why the proposed categorical exclusion of Antarctic ship-based tourism conducted according to a “Lindblad Model” does not fit with the approach used by the U.S. government for categorical exclusions. Activities associated with ship-based tourism conducted by the U.S.-based operators have been at the IEE-level of documentation; e.g., the potential environmental impacts are no more than minor or transitory rather than less than minor or transitory.

4.4.5, the discretionary approach and elimination of the PERM provision does not allow the U.S. government to ensure that U.S.-based operators are applying the assessment procedures consistent with Annex I.

The ability of Alternative 5 to ensure consistency between the governmental and nongovernmental EIA processes:

Selection of Alternative 5 for proposed promulgation would enhance consistency between the governmental and nongovernmental processes and requirements by including a definition (or other provision) for “more than minor or transitory” and a provision for categorical exclusions. However, elimination of the PERM provision would be inconsistent with the EIA processes and requirements that apply to U.S. governmental entities.

The burden imposed on the operators under Alternative 5:

Alternative 5 would include the paperwork reduction provisions of Section 8.4(d), and would also add a provision allowing operators to submit multi-year EIA documentation to address proposed expeditions for a period of up to five consecutive austral summer seasons and a provision for categorical exclusions. In addition, Alternative 5 would eliminate the PERM provision thus eliminating the paperwork burden associated with submission of this documentation to EPA for review,⁷⁴ and it would include an automatic deferral reciprocity provision which could eliminate any further burden for a U.S.-based operator to prepare any additional documentation.⁷⁵

In summary, even though Alternative 5 would provide maximum reduction of burden on the operators, it would not: ensure that the U.S. is able to comply with its obligations under the Protocol; assure that the regulations would be, as directed by the Act, “consistent with Annex I to the Protocol” or ensure consistency between the governmental and nongovernmental EIA processes.

5.6. Summary of the Consequences Assessment Process and the Potential Consequences for the Five Alternatives

The five Alternatives are variations of the Interim Final Rule and, thus, Alternative 1, the “No Action” alternative (e.g., promulgation of the Interim Final Rule as the final rule). Alternative 2, the Interim Final Rule with certain procedural and administrative modifications, is EPA’s Preferred Alternative.

⁷⁴ The U.S. would not be able to ensure that it is able to comply with its obligations under the Protocol, nor is this consistent with Annex I to the Protocol or the EIA requirements for U.S. governmental activities in Antarctica.

⁷⁵ However, it is the responsibility of the United States to comply with its obligations under the Protocol and a reciprocity provision would not be consistent with these obligations

Alternatives 3 and 4 and, for the most part, Alternative 5 incorporate modifications related to issues raised during scoping which EPA addressed for reasons of completeness, but for which the U.S. government does not have authority under the Act to implement because they are inconsistent with the provisions of the Protocol. The Act requires that the regulations be consistent with it, thus, EPA (or any other federal agency) lacks statutory authority under the Act to incorporate such provisions into regulations. These Alternatives are included for purposes of public disclosure. However, the U.S. government does not advocate pursuing these Alternatives.